



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3258
Plant ID No.: 777-00136
Applicant: Boxley Concrete Products of VA, Inc.
Facility Name: Lewisburg Facility
Location: Lewisburg, Greenbrier County
SIC / NAICS Code: 3273 / 327320
Application Type: Construction
Received Date: July 10, 2015
Engineer Assigned: Thornton E. Martin Jr.
Fee Amount: \$2,000
Date Received: July 14, 2015
Complete Date: July 29, 2015
Applicant Ad Date: July 13, 2015
Newspaper: *The West Virginia Daily News*
UTM's: Easting: 539.04 km Northing: 4192.19 km Zone: 17
Description: Applicant proposes to utilize a mobile generator, pug mill mixer and conveyor to mix product coming from the currently permitted (G50-B083) ready mix plant and load into trucks.

DESCRIPTION OF PROCESS

The Greenbrier airport in Lewisburg, West Virginia has plans to extend several runways. The job requires 3,000 tons of cement treated aggregate be placed prior to the top coarse being completed. Boxley currently operates a concrete ready mix plant just west of Lewisburg. The plant (025-00009) is permitted under permit G50-B083. This plant resides adjacent to Boxley Aggregates of West Virginia, LLC, Lewisburg Plant (025-00009), Permit G40-C019D.

To make the product, aggregate will be introduced into the ready mix plant and cement added as usual. Rather than dropping the mixture in a ready mix truck, however, it will be discharged into a closed pug mill mixer where water will be added. This transfer is controlled by the ready mix dust collector as usual. The pug mill mixer churns and mixes the aggregate, cement and water transferring it onto a belt conveyor that discharges into a dump truck to send to the job-site. The material will be wet, emitting no emissions. The system will operate at 150 tons per hour. The pug

mill mixer and belt conveyor will be powered by the 800 kW diesel generator. The engine is a 2006 (Mfg. Date of 11/08/2006), Caterpillar 6CPXL27.0ESL, Serial Number: MJE00240, Rated for 1,105 HP (800 kW) @ 1,800 RPM and Tier 2 certified (Certificate Number: CPX-NR9-06-04).

Table 1: Emission Units Summary

Emission ID No.	Emission Point ID	Description	Year Installed/Modified	Design Capacity	Control Equipment ¹
Equipment					
1S	1E	Mobile Diesel Generator Set	2006	1105 HP / 800 kW	N
2S	2E	Pug Mill / Mixer	2014	150 TPH	APCD-4
3S	3E	Belt Conveyor transfers to dump truck	2014	150 TPH	MC
Control Equipment				Total Cloth Area (ft³)	Air/Cloth Ratio (ft/min)
APCD-4	Baghouse – Con-E-Co PJ-980 - Pulse Jet (used for mixer truck loading or Pug Mill Loading)		2010	980	6.0

¹ N - None; APCD-4 - Baghouse; MC - Moisture Content.

SITE INSPECTION

John Moneypenney of the Division of Air Quality Enforcement Section performed a full, on-site, targeted inspection on October 09, 2014. The facility received a score of 30 - In Compliance.

Directions: Take I-64 E, take exit # 161 at Alta, WV. Travel west on Route 60 approximately 3/4 mile. The facility is on the right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Boxley used the manufacturer's supplied data for the engine emissions estimate (1E) and the General Permit G50-B Emission Calculation Spreadsheet for concrete batch plants, G50BECALC, to calculate emissions from the weigh hopper to the pug mill (2E) and from the conveyor belt to the dump truck (3E). The estimated emission calculations were performed by the applicant and were checked for accuracy and completeness by the writer.

Fugitive emissions sources include those generated from the delivery and unloading of aggregate and sand, and the subsequent use of the wheel loader to transfer these materials to the bins. Fugitive emissions resulting from delivery and transfer by wheel loader are minimized by the use of water sprinklers. Fugitive emissions generated from weighing the aggregate and sand is controlled by enclosing the weigh hopper for these materials.

Cement and flyash emissions are controlled by the use of filter vents attached to separate enclosed silos for each material. Additionally, a filter vent will be used to control emissions when weighing both the cement and flyash in the weigh hopper.

Fugitive emissions that are generated when the pug mill is being loaded will be collected by the baghouse via loading shroud.

The baghouse is equipped with a device to measure pressure drop across the filter elements and is monitored and recorded daily. Filter elements are cleaned and/or replaced whenever the pressure drop is outside of the manufacturer’s recommended operating parameters.

All haul roads will be of coarse gravel and fugitive emissions will be controlled by water spray, as need, from sprinklers.

Uncontrolled emissions for the transfer points (2E and 3E) are estimated to be 0.62 lb/hr or 2.69 TPY each. The maximum uncontrolled emissions for Boxley’s portable facility based on 8,760 operating hours are summarized in the following table:

Table 2: Proposed Uncontrolled Emissions Summary

Uncontrolled Emissions Summary - Portable Facility (R13-3258) Boxley Concrete Products of VA, Inc.	NOx		CO		HC		PM	
	lb/hour	TPY	lb/hour	TPY	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions								
Stockpile Emissions	--	--	--	--	--	--	As listed under Permit G50- B083	
Unpaved Haulroad Emissions	--	--	--	--	--	--		
Fugitive Emissions Total	--	--	--	--	--	--		
Point Source Emissions								
Equipment (Engine Emissions)	11.14	48.79	0.65	2.85	0.07	0.31	0.05	0.22
Transfer Point Emissions	0.00	0.00	0.00	0.00	0.00	0.00	1.24	5.38
Point Source Emissions Total (PTE)	<i>11.14</i>	<i>48.79</i>	<i>0.65</i>	<i>2.85</i>	<i>0.07</i>	<i>0.31</i>	<i>1.29</i>	<i>5.60</i>
FACILITY EMISSIONS TOTAL								
	11.14	48.79	0.65	2.85	0.07	0.31	1.29	5.60

Boxley anticipates operating this portable facility for a maximum of 2,500 hours, and as such, published their estimated emissions based on a maximum of 2,500 hours of operation with controls in place. Controlled emissions for transfer points (2E and 3E) were estimated to be zero based on the collection efficiency of the baghouse (2E, material entering pug mill) and the moisture content (3E, material entering dump truck). The Applicant’s legal notice states the potential to discharge the following Regulated Air Pollutants will be: NOx, 13.93 TPY; CO, 0.81 TPY; HC, 0.09 TPY and PM, 0.06 TPY.

Existing facility emissions for the concrete batch plant permitted under G50-B083 are provided as follows:

Table 3: Facility emissions permitted under G50-B083

Emission Source Boxley Concrete Products of VA, Inc. G50-B083	Controlled PM Emissions		Controlled PM ₁₀ Emissions	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Stockpile Emissions	0.13	0.58	0.06	0.27
Unpaved Haulroad Emissions	72.87	13.66	21.51	4.03
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	<i>73.00</i>	<i>14.24</i>	<i>21.57</i>	<i>4.30</i>
Point Source Emissions				
Equipment Emissions	0.00	0.00	0.00	0.00
Transfer Point Emissions	15.07	2.82	7.43	1.39
Point Source Emissions Total (PTE)	<i>15.07</i>	<i>2.82</i>	<i>7.43</i>	<i>1.39</i>
FACILITY EMISSIONS TOTAL				
	88.06	17.07	29.00	5.70

Boxley Concrete Products of VA, Inc. and Boxley Aggregates of West Virginia, LLC plants meet the definition of “Building, Structure, Facility, or Installation” in 45CSR14.2.13 and “Major Source” in 45CSR30.2.26 and shall be considered as one facility for determining applicability to 45CSR14 (PSD) and 45CSR30 (Title V). Therefore, Boxley Concrete Products of VA, Inc. and Boxley Aggregates of West Virginia, LLC’s plant emissions shall be combined when determining applicability. The facilities will have a combined (point source and fugitive) estimated potential to discharge controlled emissions of 607.22 TPY of PM (particulate matter), of which 203.61 TPY are PM₁₀ (particulate matter less than 10 microns in diameter). The facilities will have a combined estimated potential to emit (point source emissions only) of 170.45 TPY of PM (particulate matter), of which 74.03 TPY are PM₁₀ (particulate matter less than 10 microns in diameter). Refer to the following table for a summary of the Boxley Concrete Products of VA, Inc. and Boxley Aggregates of West Virginia, LLC’s combined emissions:

Table 4: Facility emissions for G40-C019D, G50-B083 and R13-3258 combined:

Emission Source G40-B019D, G50-B083 and R13-3258 Combined	Controlled PM Emissions		Controlled PM ₁₀ Emissions	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Stockpile Emissions	0.87	3.76	0.39	1.77
Unpaved Haulroad Emissions	266.37	433.01	78.62	127.81
Fugitive Emissions Total	<i>267.24</i>	<i>436.77</i>	<i>79.01</i>	<i>129.58</i>
Point Source Emissions				
Equipment Emissions	17.75	44.34	6.32	15.76
Transfer Point Emissions	65.14	126.11	30.54	58.27
Point Source Emissions Total (PTE)	<i>82.89</i>	<i>170.45</i>	<i>36.86</i>	<i>74.03</i>
FACILITY EMISSIONS TOTAL				
	350.13	607.22	115.87	203.61

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The proposed construction of a portable mix facility is subject to the following state and federal rules:

45CSR7 To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations

The facility is subject to the requirements of 45CSR7 because it meets the definition of “Manufacturing Process” found in subsection 45CSR7.2.20. The facility should be in compliance with Subsection 3.1 (no greater than 20% opacity), Subsection 3.7 (no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have a full enclosure and be equipped with a control device), Subsection 4.1 (PM emissions shall not exceed those allowed under Table 45-7A), Subsection 5.1 (manufacturing process and storage structures must be equipped with a system to minimize emissions), Subsection 5.2 (minimize PM emissions from haulroads and plant premises) when the particulate matter control methods and devices proposed within application R13-3258 are in operation.

According to Table 45-7A, for a type ‘a’ source with a maximum process weight rate of 130,000 lb/hour, the maximum allowable emission rate is 34 lb/hour of particulate matter. The maximum emission rate is 15.25 lb/hour of particulate matter according to calculated emissions in fact sheet R13-3258.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed construction is subject to the requirements of 45CSR13 because it will result in an increased potential to discharge 11.14 pounds per hour and 48.79 TPY of NO_x (Nitrogen Oxides). Since the calculated potential to discharge is more than six (6) pounds per hour and ten (10) tons per year, and 144 pounds per day of a regulated air pollutant (NO_x), the proposed construction requires a Permit to Construct. The applicant submitted the proper \$2,000 application fee and published a Class I legal advertisement in the *The West Virginia Daily News* on July 13, 2015.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants

The proposed construction is subject to 40 CFR 60 Subpart OOO because it will occur after April 22, 2008 and the portable plant processes more than 25 tons of aggregate per hour. The proposed construction will include a belt conveyor, which is defined as an affected facility in 40 CFR 60 Subpart OOO. Therefore, the proposed construction is subject to 45CSR16, which incorporates by reference 40 CFR 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants. The facility should be in compliance with 60.672 (b) no greater than 7% opacity from any transfer point on belt

conveyors or from any other affected facility (as defined in 60.670 and 60.671) and no greater than 12% opacity from any crusher when the particulate matter control methods and devices proposed within application R13-3258 are in operation.

45CFR60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Boxley Concrete Products of VA, Inc. is subject to this subpart because the engine was manufactured after April 1, 2006. The engine emissions for [1S] is EPA Tier II Certified, Certificate Number: CPX-NR9-06-04.

40CFR63 Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Boxley Concrete Products of VA, Inc. is subject to 40CFR63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because [1S] is considered a new area source of HAPs since it will be constructed on or after June 12, 2006, however, the only requirements that apply are those required under 45CFR60 Subpart IIII.

45CSR30 Requirements for Operating Permits

In accordance with 45CSR30 Major Source Determination, the combined facilities will be a non-major source which is subject to NSPS Subparts OOO and IIII. The combined facilities' potential to emit will be 74.03 TPY of a regulated air pollutant (PM10), not including fugitive emissions from haulroads, which is less than the 45CSR30 threshold of 100 TPY. Therefore, the facility will be subject to 45CSR30 and classified as a Title V deferred non-major source.

The proposed construction of a portable mix facility will not be subject to the following state and federal rules:

45CSR14 Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

In accordance with 45CSR14 Major Source Determination, the proposed portable mix plant is not listed in Table 1. The facilities will have a combined potential to emit 170.45 TPY of a regulated air pollutant (PM), not including fugitive emissions, which is less than the 45CSR14 threshold of 250 TPY. This Lewisburg Facility is not listed in Table 2, and so fugitive emissions are not included when determining source applicability. Therefore, the proposed construction is not subject to the requirements set forth within 45CSR14.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Small amounts of non-criteria regulated hazardous or toxic air pollutants such as benzene, ethylbenzene, toluene, xylenes and formaldehyde may be emitted from the portable generator. Due to the small amounts emitted, these non-criteria regulated hazardous/toxic pollutants should not adversely impact an applicable ambient air quality standard or cause or contribute to degradation of public health and welfare. A toxicity analysis would be required when the Director determines the facility may interfere with attainment or maintenance of an applicable ambient air quality standard or cause or contribute to degradation of public health and welfare.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility and the limit of the proposed Construction. This facility will be located in Greenbrier County, WV, which is not designated as non-attainment for PM_{2.5} (particulate matter less than 2.5 microns in diameter).

RECOMMENDATION TO DIRECTOR

The information contained in this construction application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse impacts on the surrounding area should be minimized. Therefore, the granting of a Rule 13 registration to Boxley Concrete Products of VA, Inc. for the construction of a portable mix plant to be located in Lewisburg, Greenbrier County, WV is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

July 29, 2015

Date